

VoIP E9-1-1 Implementation Challenges

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TCS Is Coming from a Wireless Perspective

Wireless Carriers

- Contractual relationships with over 46 wireless carriers
- Contracted to deploy E911 services to over 56 million subs for over 35 carriers (4 of top 5)
- Handling over 50,000 E9-1-1 calls daily

Local Exchange Carriers (LECs)

- Working relationships with all of the major LECs and many CLECs and smaller telecom providers

PSAPs

- Deployed wireless E911 in 42 states to over 4600 PSAPs
- Member of NENA, APCO and ComCARE
- Charter member of NENA Next Generation task force
- Former public safety officials on staff and in management

E9-1-1 Success Stories

Requirements for E9-1-1

Requirements for a proper E9-1-1 call:

1. Must know location of caller
2. Must use caller location to route call
 - The US has over 8000 Public Safety Answering Points (PSAPs)
 - PSAPs typically cover metropolitan areas or counties
 - PSAPs are Call Centers which dispatch Emergency Services
3. Must deliver caller location
 - Call Centers can automatically receive location information
 - For wireline, street address information is delivered
 - For wireless, latitude/longitude information is delivered

1 [Location] + 2 [Routing] + 3[Delivery] = Full E9-1-1!



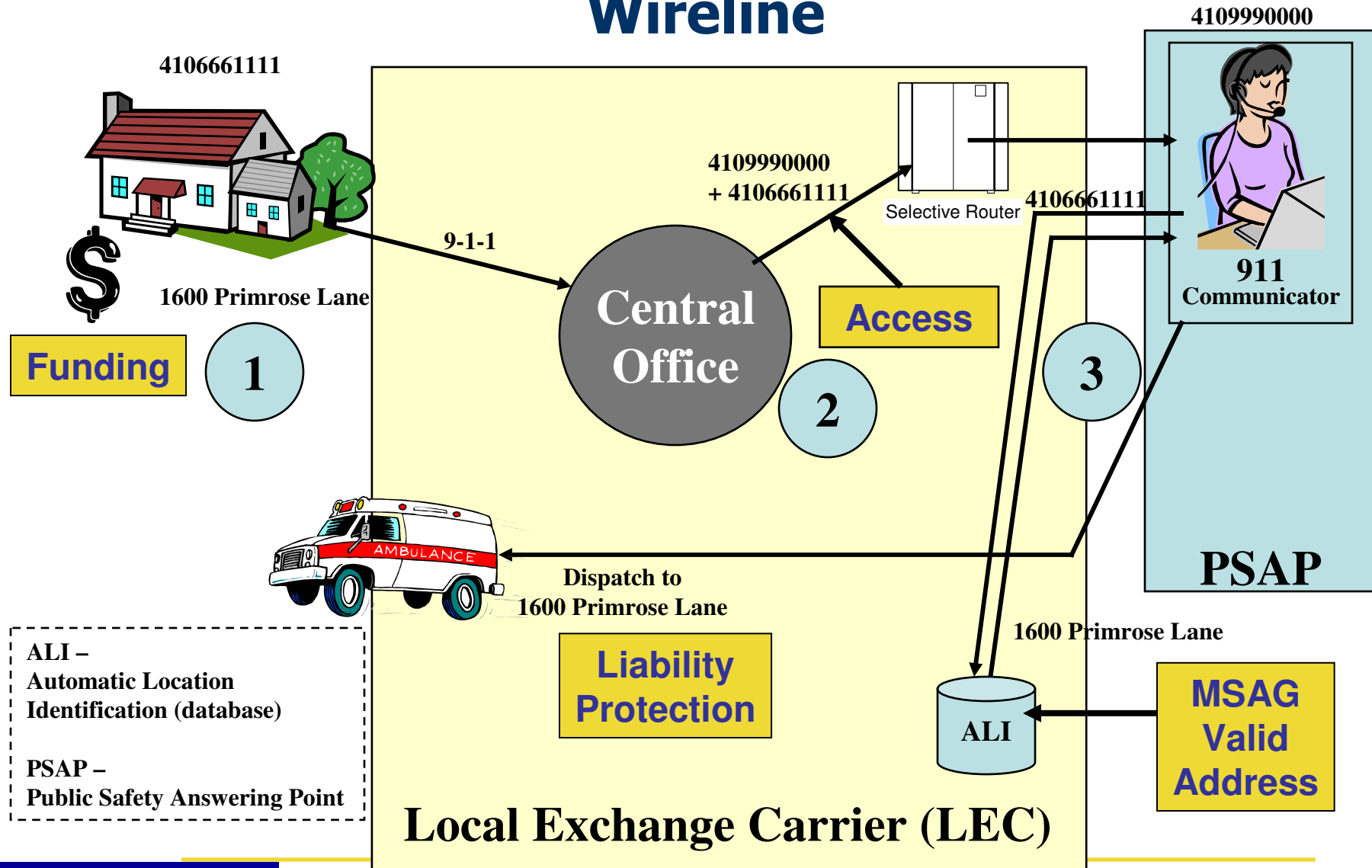
Greatest Technical Challenge - Location

- **Numerous techniques being explored**
 - Self registration
 - Port discovery
 - WiFi triangulation
 - Potential for GPS in the handset or Terminal Adapter

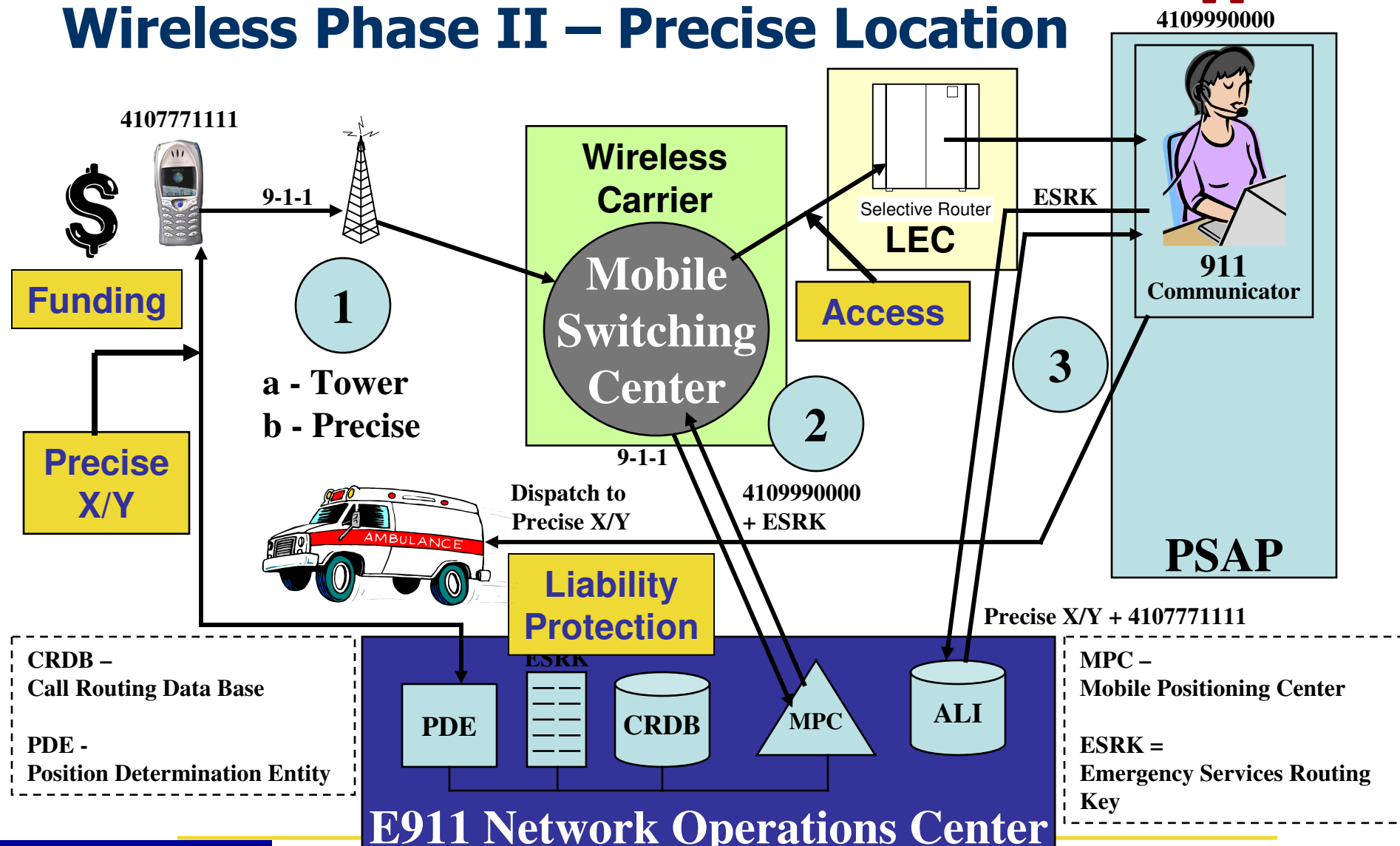
Marketplace is continuing to innovate
Too early to recommend one solution

Wireline E9-1-1 Success Wireline

Database Approach



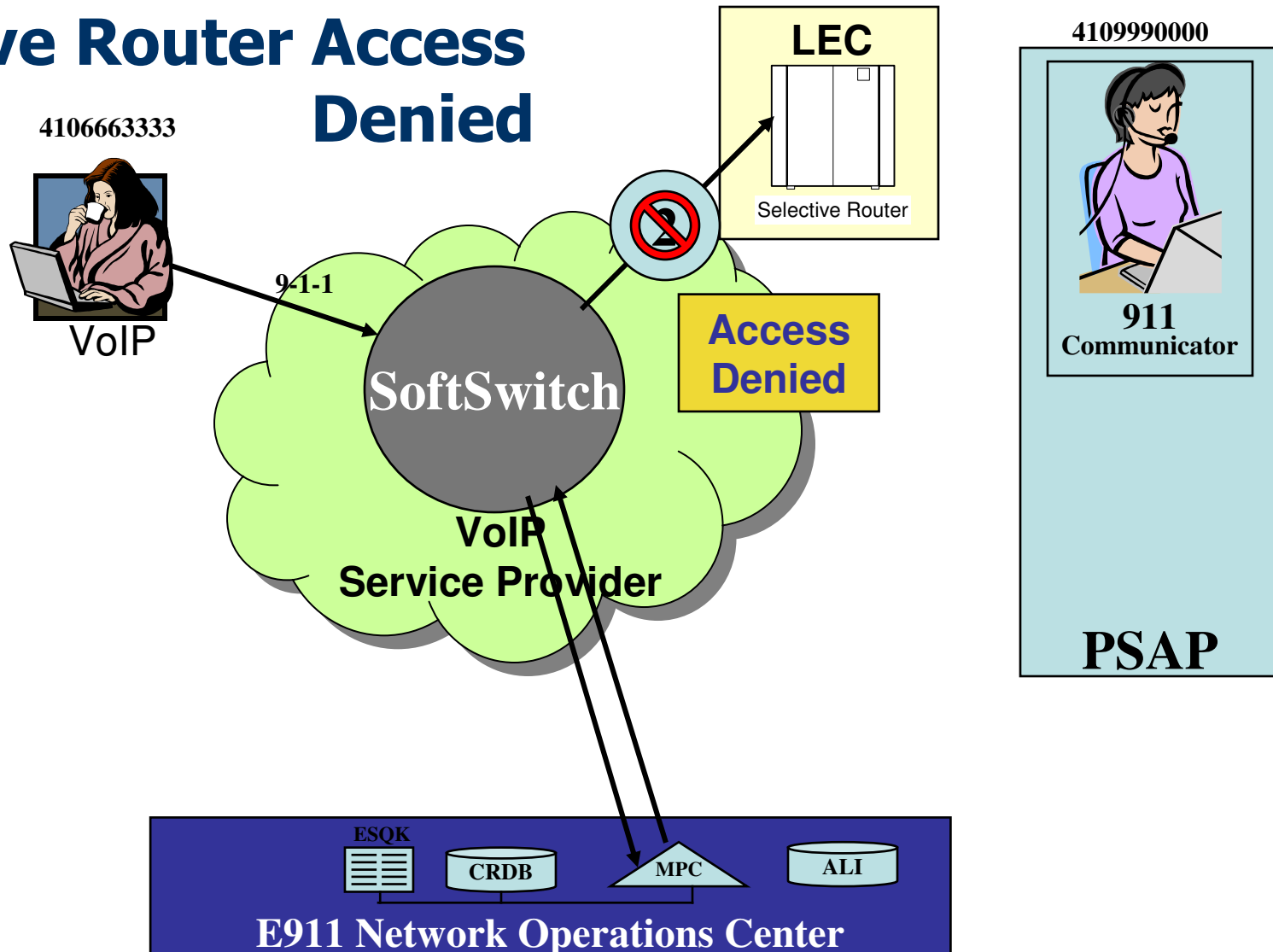
Wireless E9-1-1 Success Wireless Phase II – Precise Location



Key Issues Impeding Success for VoIP E9-1-1

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Selective Router Access Denied



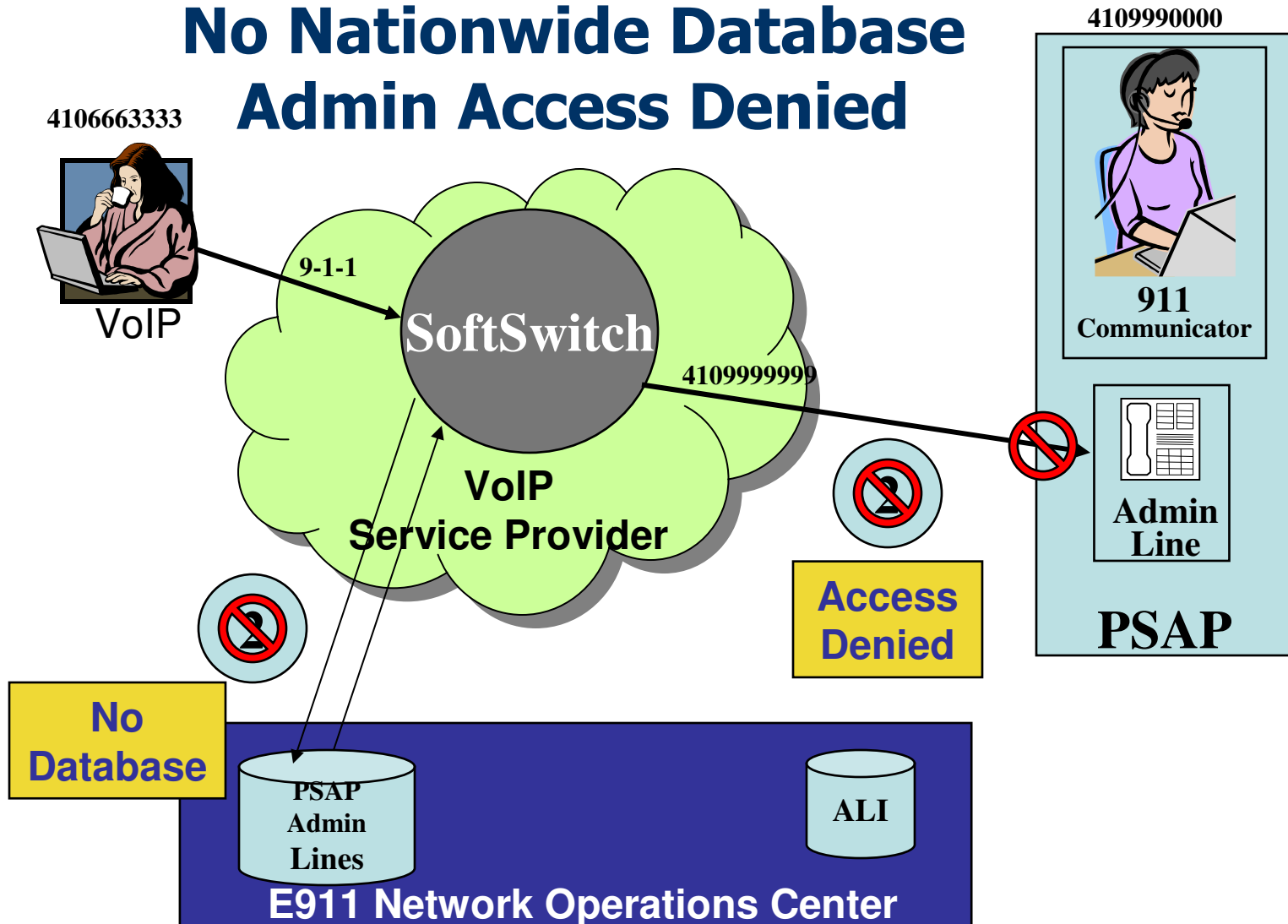
Selective Router Access Must Be Allowed

- **Auto Info Delivery requires Selective Routers**
 - Router access is primarily controlled by the LECs
 - CLECs can be granted access to the Selective Routers
 - Many VSPs are not CLECs
 - LECs should be encouraged to grant access
 - Already happening at various levels
 - Qwest, Verizon, Bell South announcements

**Even if access is granted,
there will be a time of transition.**

PSAP Admin Access Is Needed in Interim

No Nationwide Database Admin Access Denied

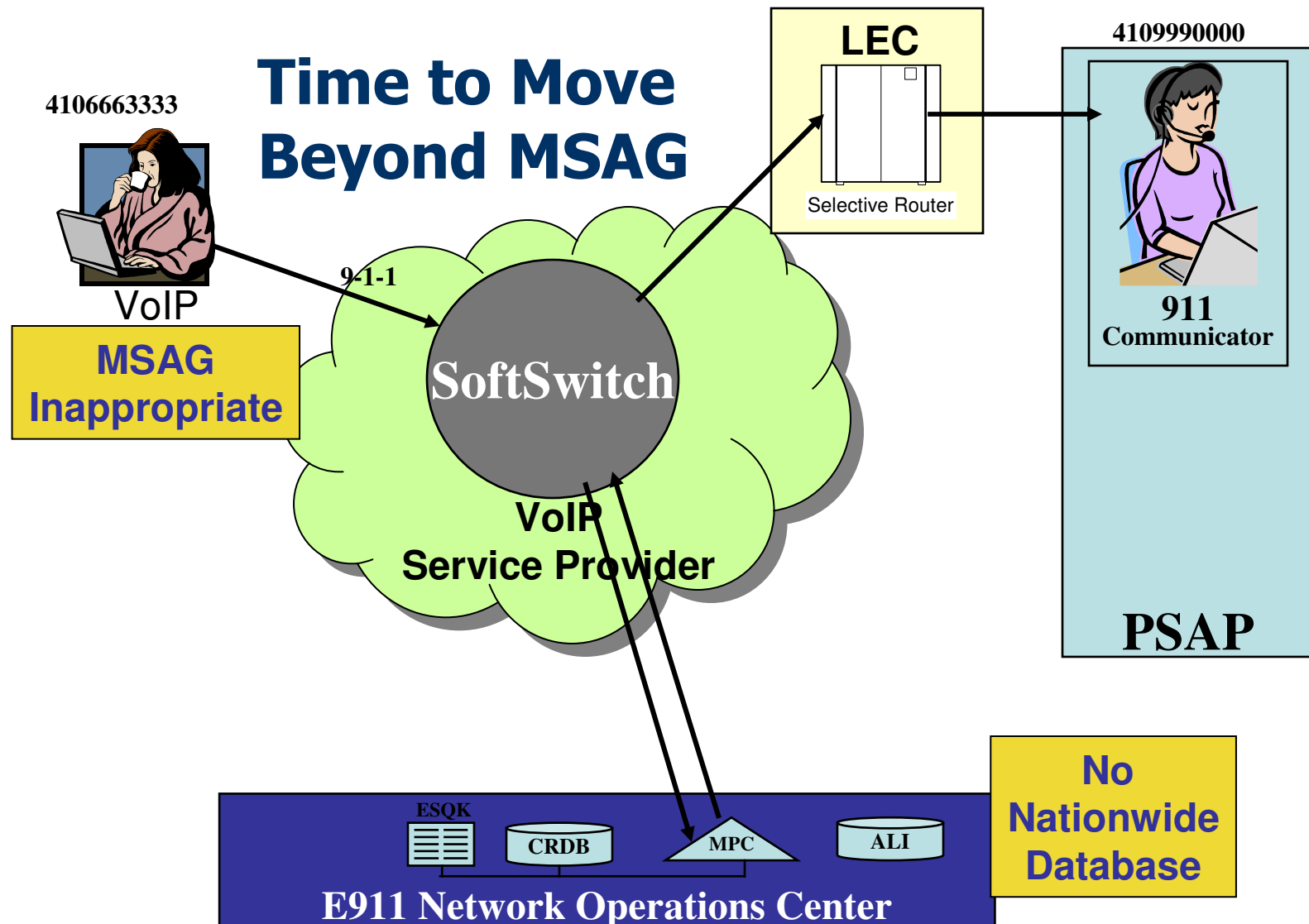


PSAP Admin Line Access Needed in Interim

- **Interim solutions will be necessary**
 - Access to Selective Routers will take time
 - Regulatory issues need to be sorted out
 - Business issues (cost) will likely be negotiated
 - Technical issues (establishing connections) will take time
 - Public Safety does not support granting access
 - Administrative lines not staffed at same levels
 - Location is not automatically delivered – seconds lost!
 - Cannot build a proper nationwide PSAP database
 - Lives may be at risk during transition

Public Safety must feel “included”

Need Nationwide MSAG (or none)



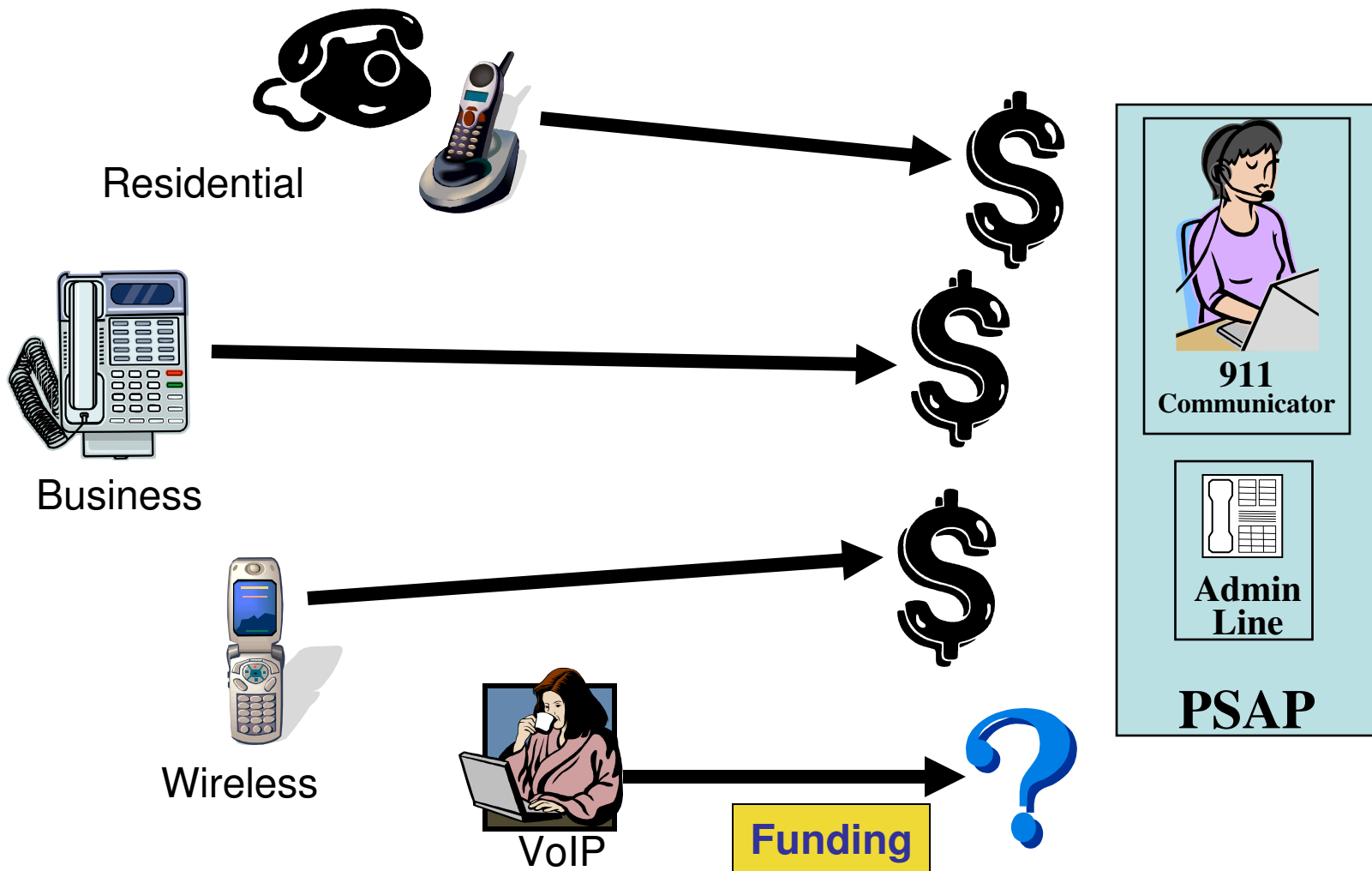
Need Nationwide MSAG (or none)

- **MSAG is an antiquated location solution**
 - Data is fragmented
 - Controlled at the local level
 - Abbreviations not consistent nationwide
 - Many locations do not have an appropriate address
 - Corporate campus between buildings
 - Latitude/Longitude is more appropriate
 - Works well with existing Graphical Information Systems
 - Wireless interfaces provide it
 - Need Public Safety's help to build MSAG
 - Need Public Safety's concurrence to eliminate MSAG

Public Safety must feel “included”

PSAPs Must Be Funded

Funding Guidance Needed

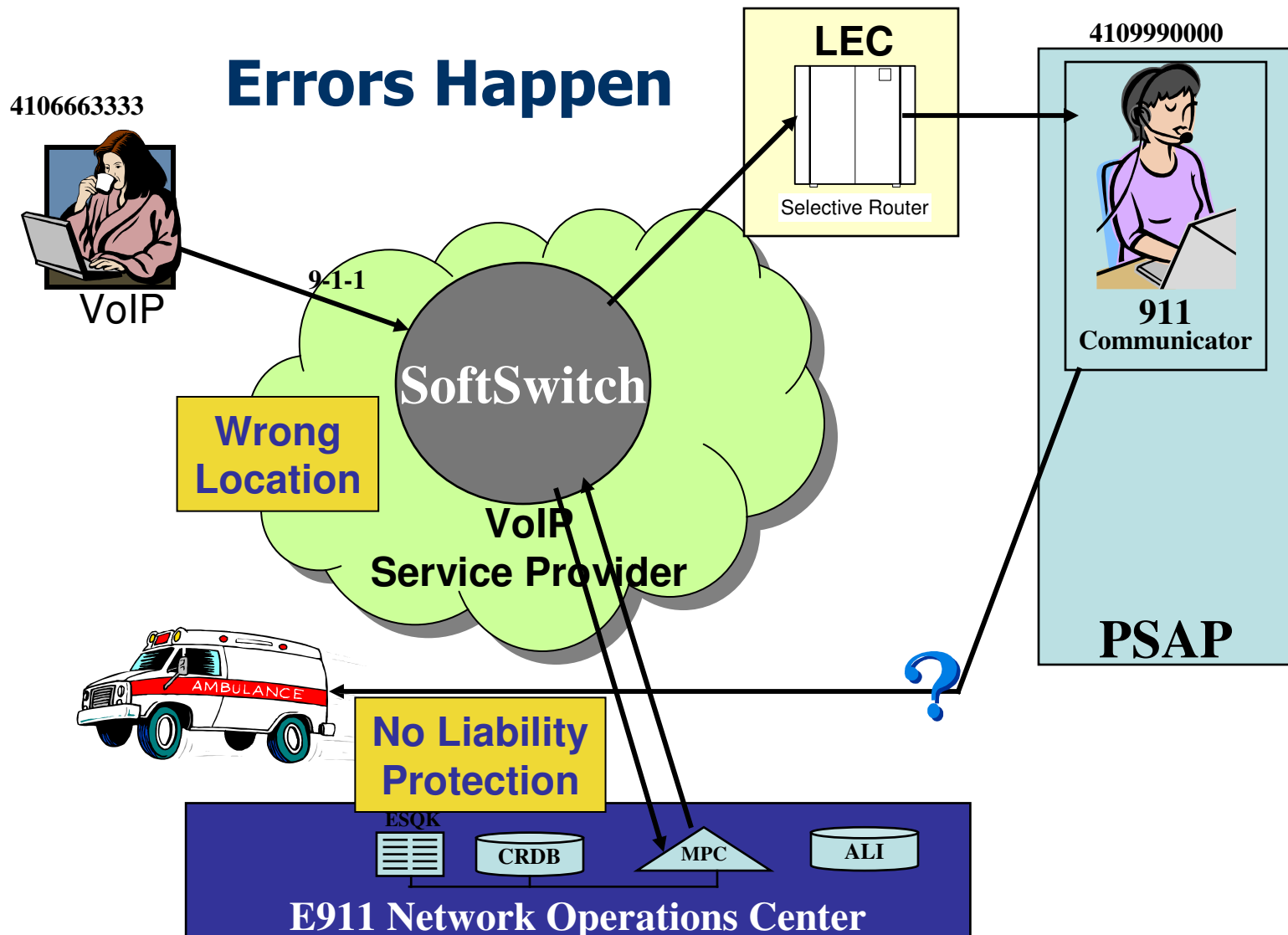


PSAPs Must Be Funded

- **Public Safety Sees Future Funding Risks**
 - Average of \$0.98/line in revenues to Public Safety
 - As VoIP penetration increases, funding will decrease
- **Most VSPs are willing to contribute – need guidance**
 - VSPs are unclear as to how to contribute to public coffers

VSPs could use clear guidelines

VSPs Need Liability Protection



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- **Errors can occur**
 - Location might not be available
 - Location might be out-of-date
 - Hardware/software may fail
 - Human error can occur
- **Wireline/wireless providers have liability protection**
 - “Gross Negligence” standards applied
- **Liability Protection encourages participation in E9-1-1**

VSPs Need Same Treatment as Other Carriers

Requests for FCC Action

- Let location technology innovate
- Ensure access to Selective Routers
- Encourage Public Safety to allow interim solutions
- Give VSPs guidance on how to fund Public Safety
 - Initially provide guidelines
 - Encourage VSPs to provide 9-1-1
 - Eventually mandate payment methods or allow states to do so
- Consider liability protection for VSPs



Questions

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